Global City Teams Challenge

Overview Presentation

The Goal

- Accelerate the emergence of interoperable, adaptable, configurable Internet of Things ("IoT") / Cyber-Physical Systems ("CPS") technologies and solutions in Smart Communities/Cities to improve efficiency and security, create new business opportunities, promote affordable and sustainable living environments, and enhance the quality of life.

The Issue/Opportunity

- Smart Cities/Communities are increasingly turning to advanced technologies to improve services, promote economic growth, and enhance the quality of life.
- Many IoT/CPS innovators already have technologies (i.e., building blocks) and their impact can be maximized by fostering collaboration among the innovators to create interconnected solutions to provide tangible benefits to end users.
- Current deployments of IoT/CPS are fragmented lacking interoperability and standards.
- Many smart community efforts are one-off projects with heavy emphasis on customization and inadequate consideration for future upgradability and extensibility, which end up causing increased cost and inefficiency. As a result, many Smart Cities/Communities deployments are isolated and do not enjoy the economy of scale.

The Strategy

- Establish and demonstrate scalable and reproducible models for incubation and deployment of interoperable, adaptable and configurable IoT/CPS technologies and solutions in Smart Communities/Cities.

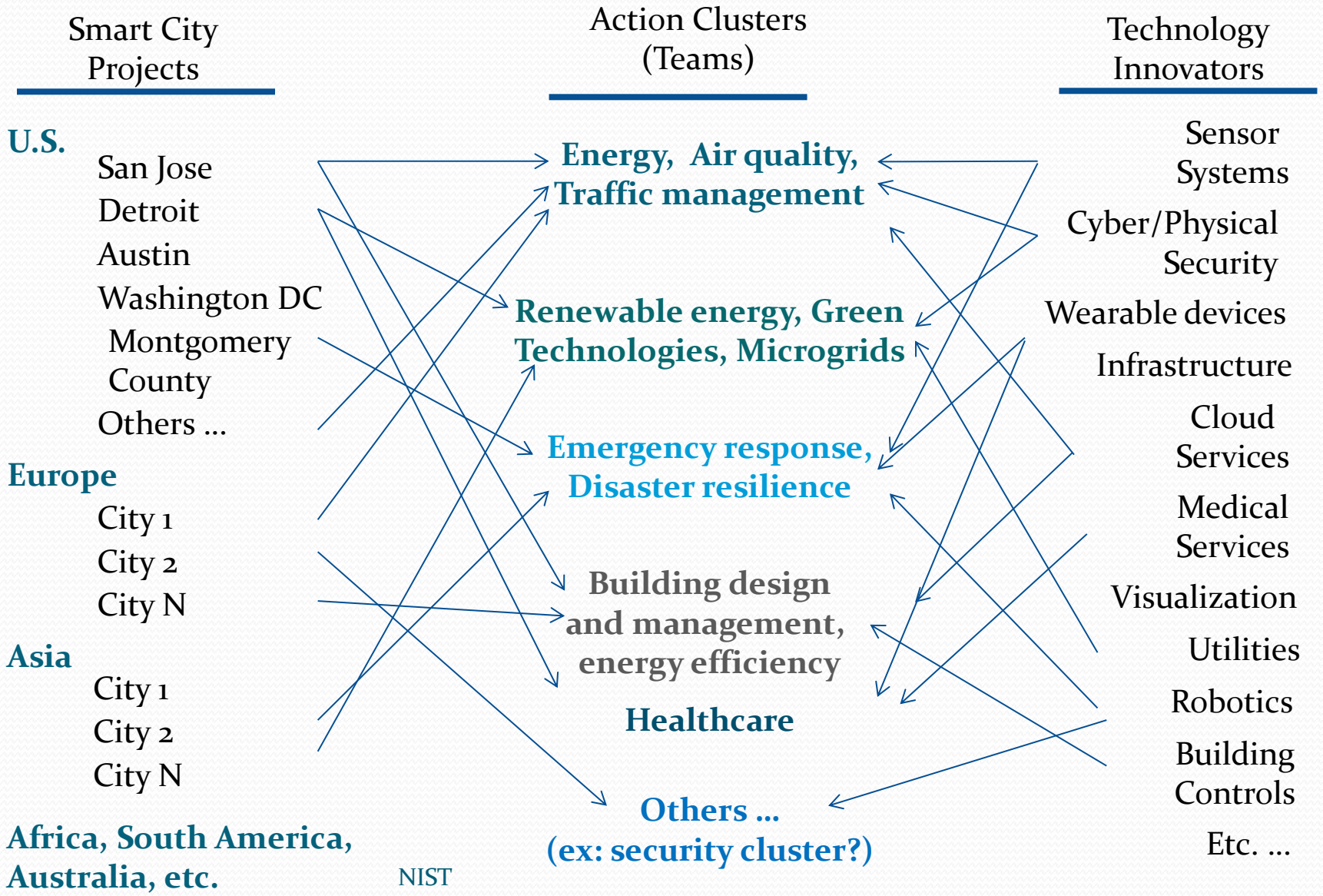
The Approach

- Facilitate partnerships and interconnections among cities/communities, planners, and project managers
  - Identify common issues
- Facilitate partnerships and interconnections among innovators
  - Form/incubate teams to address specific issues and provide tangible benefits – transportation, disaster response, energy, healthcare, environment, others, or any combination of the above.
- Facilitate partnerships between the cities/communities and innovators through "Action Clusters"
  - Each Action Cluster functions as a "matchmaking table" that cities and innovators can coalesce based on the issues to be addressed.
  - Jointly identify solutions that are scalable and reproducible

Technical Outcome

- NIST Smart Cities Framework
  - Address standards and measurement challenges in deploying IoT and CPS in Smart Cities/Communities to serve as the basis for framework
- IoT Global Connectivity Fabric Framework
  - Based on the inputs from the participants and the outcome of the Challenge, initiate architectures guidelines of interconnected “systems of systems” and a common data exchange/data analytics model for large scale IoT deployments.

Overview


Smart City Projects
Action Clusters (Teams)
Technology Innovators
U.S.
San Jose
Detroit
Austin
Washington DC
Montgomery County
Others …
Europe
City 1
City 2
City N
Asia
City 1
City 2
City N
Africa, South America, Australia, etc.
Energy, Air quality, Traffic management
Renewable energy, Green Technologies, Microgrids
Emergency response, Disaster resilience
Building design and management, energy efficiency
Healthcare
Others … (ex: security cluster?)
Sensor Systems
Cyber/Physical Security
Wearable devices
Infrastructure
Cloud Services
Medical Services
Visualization
Utilities
Robotics
Building Controls
Etc. …

Stakeholders

- SmartAmerica Round One participants
- Innovators in the US and worldwide
  - Additional corporations
  - Additional academic institutions/non-profits
  - Additional government organizations
- Cities/Communities, Planners, Project Managers around the world
- Foundations and sponsors of smart city/IoT projects

Current Partners include:

- US-Ignite
- National Science Foundation
- US Department of Transportation
- US Department of Health and Human Services
- IBM, Intel, Qualcomm, Cisco, ARM Holdings, Juniper Networks, Extreme Networks

Creating GCT Challenge Teams

NIST & US Ignite will:

- Publicize the Challenge
- Convene interested parties
- Facilitate partnerships
  - One-Page “contribution” submissions
  - Matchmaking
  - Team Leaders

Timeline

- Sep 29-30, 2014: Kick-off event
  - NIST in Gaithersburg, MD
- Winter 2015: Tech-Jam
- June 2015: Global City Teams Festival(s)
- Continuing: New cities join and teams expand

Kick-off Event Sep 29-30, 2014

- NIST Campus in Gaithersburg, MD (webcast available)
- Form Action Clusters via "Jam", establish matrix partnerships among the participants and elect team leader(s) of each cluster
- Preliminary Agenda
  - Welcome and introduction of the challenge (Sept 29th, 9:00am-10:30am)
  - "Matchmaking" breakout sessions to form Action Clusters (Sept 29, 10:30am – 4:30pm, 1 hour lunch)
    - Participants will have an opportunity to give 2-3 min elevator pitch
      - Cities/Communities/Smart City planners: requirements, smart city challenge/issues
      - Innovators: technical "building blocks" to address smart city challenges
    - Form teams/actions clusters with the help from facilitators
  - Report-out from the Action Clusters and closing (Sept 30th, 9am-1pm)

After Kick-off Event

- Winter 2015: Tech-Jam
  - Present the progress of the teams/clusters
  - Form additional teams/clusters
  - Collect the needs on standardization and metrics
  - Discuss Smart Cities Framework, IoT Global Connectivity Fabric Strategy
- June 2015: Global City Teams Festival(s)

Anticipated Outcomes of the Challenge

- Establishment of a NIST Smart Cities Framework
  - Informed by the record established by the GCT Challenge
- Initiation of a IoT Global Connectivity Fabric Framework
  - Guidelines for interconnected *systems of systems*
- Increased publicity for the impact of Smart City/IoT projects
  - GCT Challenge Festivals

Expected Benefits

- All participants will be recognized and highlighted as the leaders in IoT/Smart Cities. Additional benefits include:

- Community, City, and Regional Leaders and Planners
  - Reduce time and costs of IoT deployments
    - Leverage investments with other cities
    - Jointly identify solutions with other cities
    - Access to rich set of solutions from broad range of innovators
- Innovators
  - Advance their technologies and connect to customers
    - Identify the opportunities to provide common solutions to multiple cities
    - Provide more complete solutions to the cities by partnering with other innovators
    - Demonstrate agility of solutions and test technologies at scale
- Government
  - Promote economic and social benefits of IoT and Smart Cities
    - Enhance quality of life by promoting affordable IoT solutions to broader communities/cities
    - Improve the economy and boost industry competitiveness by encouraging innovations and adoption of IoT
    - Enabling interoperability and shared solutions
- Residents
  - Access to improved services and better quality of life

For More Information

- Contact
  - Sokwoo Rhee (sokwoo.rhee@nist.gov)
- NIST information site
  - http://nist.gov/cps/sagc.cfm
- Join the Challenge
  - https://us-ignite.org/globalcityteams/
- Kick-off Event/Webcast Registration (Sep 29-30, 2014)
  - http://www.nist.gov/cps/global-city-teams-challenge-workshop.cfm
- Submit a One-Page Summary of Your Contributions for the Kick-off Event
  - https://us-ignite.org/globalcityteams/upload
- SmartAmerica Round One web site
  - http://www.nist.gov/el/smartamerica.cfm
  - http://www.smartamerica.org/